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Determining Attitudes towards Pedagogical Teacher Training: A Scale Development Study

Hasan Aydin[1] & Dolgun Aslan[2]

[1] Curriculum and Instruction Dept., School of Education, Yildiz Technical University, Istanbul, Turkey

[2] Ministry of National Education, Istanbul, Turkey

Correspondence: Hasan Aydin, Curriculum and Instruction Dept., School of Education, Yildiz Technical University, Istanbul, Turkey. Tel: 90-212-383-4835. E-mail: aydinh@yildiz.edu.tr

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Abstract

Education is the key to raising generations that are modern, democratic, productive, diligent, understanding, perceptive, critical and inquisitive. Teacher education is more important today than it has been in half a century. Thus, teachers are so significant to education and scholars argue that teacher quality is the most important within-school factor affecting student performance because great teachers help create great students. In fact, research shows that an inspiring and informed teacher is the most important school-related factor influencing student achievement, so it is critical to pay close attention to how we train and support both new and experienced educators (Edutopia, 2008). The Republic of Turkey has made great efforts to train teachers and meet the demand for teachers. Pedagogical teacher training is a part of this effort. This study will help determine the attitudes of teacher candidates towards the Pedagogical teacher training they receive, and in this regard the purpose of this study is to develop a measurement tool that can be utilized in future studies. The study showed that "The Attitude Scale towards Pedagogical Teacher Training (PFETO)" is a valid and reliable tool. PFETO is a valid and reliable data collection tool for future studies on attitudes towards Pedagogical Teacher Training.

Keywords: pedagogical teacher training, scale development, teachers candidate and Turkey

1. Introduction

In early 1920s, when Republic of Turkey was established, the literate population was quite small. At the time, teachers were trained so that they could attempt to serve in schools established to increase the literate population. These efforts, although more intense in the initial years of the Republic, continued until 1980s.

At the beginning of Turkish Republic, *village teacher schools* (köy muallim mektepleri) which offered two years of education after primary school were established in order to meet the demand for primary school teachers (Ozturk, 1996). The teachers who were trained in these schools were tasked with implementing the programs made for villages (Cicioglu, 1983). In order to meet the demand for secondary school teachers, *Secondary Teacher Schools* (Orta Muallim Mektebi) were established. In 1929-30 the name for these schools was changed into *Veteran Secondary Teacher School and Training Institute* (Gazi Orta Muallim Mektebi ve Terbiye Enstitüsü) (Kucukahmet, 1993; YOK, 2007).

Village Trainer Courses (Köy Eğitmen Kursları) were established in 1936. Village youth who completed their military service and were literate and busy with village work would attend courses for a twelve educational years and those who passed the qualifying exams would be awarded "trainer" authority (Binbasioglu, 1995). Village trainers were tasked with the general training of students and adults in the village as well as teaching modern agricultural methods to the villagers (Altunya, 2005).

Village Institutes which especially met the teacher demand for village schools were founded between 1940 and 1953. Teachers who graduated from Village institutes trained people who lived in village through schools and courses (Akyuz, 2010). Village Institutes were closed down in 1954 and were restructured as six year "Elementary Teacher Schools". In 1970 the training duration for primary schools was increased to seven years. With the Resolution Number 191 of Board of Education and Discipline, dated 24 March 1974, it was made necessary to be a graduate of a 2 year education institute to be a primary school teacher. Some of the existing elementary teacher schools were turned into two-year education institutes and some others were turned into

teacher high schools (Kucukahmet, 1993; YOK, 2007). Teacher high schools later continued their education and teaching activities under the name of *Anatolian Teacher Training High School* (YOK, 2007). Starting in the 2014-2015 academic year, these programs will begin to be phased out.

In addition to long term teacher training programs in Turkey, short term programs based on the needs and conditions of the country at the time are also in place. For example with the "Reserve Office Teacher" programs, soldiers served as village teachers after being discharged, teachers were trained in summer months through short courses at *Absentee Higher Education Center* (Mektupla Yüksek Öğretim Merkezi) and many teachers were trained through 3 month long *Accelerated Teacher Training Program* (Akyuz, 2006).

Education duration of education institutes which trained subject matter teachers for secondary schools was increased from 3 to 4 years. These institutes were restructured in order to train high school teachers too and were renamed as "High Teacher School" (Kucukahmet, 1993). In 1982, High Teacher Schools were bound to existing or newly founded universities and renamed as College of Education (The Council of Higher Education (YOK), 2007). In 1981, the foundation of the Council of Higher Education (YOK) institutions which trained teachers programs were bound to YOK as well. In addition, YOK decided to establish Curriculum and Instruction Department in Colleges of education with resolution number 82/367 dated 12 October 1982. In the following years, the universities that did not have a faculty of education established education sciences departments under their science-literature faculties (YOK, 2007).

In 1997, YOK restructured the teacher-training process. After this restructuring, the time allotted to teacher candidates in teacher training programs to get hands on experience increased significantly. Moreover, teacher training programs for both primary (including kindergartens) and secondary schools were planned to be carried out at undergraduate level (4 years) and teacher training programs for secondary schools were planned to be carried out at M.A. level (5 years) (YOK, 2007).

There were two options for secondary school teachers trained at M.A. level. First, teachers were intended to be trained in a five-year period (3,5 + 1,5 years). With this option, students could register at the department of education; however they spent the first seven semesters of their education in the relevant field in and completed their last three semesters in their own departments. Graduates of this system were awarded a M.A. The second option included four years of undergraduate work and one and a half years of MA work without a thesis, resulting in 6.5 years in total of education. Following this system, it was possible to arrange three semester-long programs to train graduates of non-education faculties as secondary school teachers. Students who completed this latter option are awarded a M.A. degree without a thesis (YOK, 2007).

In 2006-2007 YOK started a restructuring process to update and remedy the failing parts of 1997-1998 models. After this restructuring subject-matter and subject-matter training courses made up 50%-60% of the training, professional teaching courses made up 25%-30%, and general knowledge courses made up the final 15%-20%. In order to improve teachers' general knowledge, classes such as history of science, scientific research methods, effective communication skills, Turkish education history, and service to society and introduction to philosophy were added to the program. To ensure the flexibility of the program, faculties are allowed to offer varying general knowledge classes. Within the context of general knowledge courses a new course titled "Community Service Program" was added. In this course which is compulsory for all programs, students are expected to analyze the contemporary problems of society and prepare projects to develop solutions. With the new adjustment, school practice hours are reduced (YOK, 2007).

In 2010, YOK eliminated MAs without thesis and reintroduced pedagogical teacher programs. Senior students in faculties of science and literature and students in their fifth semester can take Pedagogical teacher courses based on the nine criteria set by YOK and then become teachers (Eraslan & Cakici, 2011).

Teacher training is carried out in departments of education in Turkey. However, when the demand for teachers is high, teachers are also trained through certification programs (pedagogical formation) and MA programs without a thesis. It is a commonly debated issue whether these short-term teacher-training programs, which are aimed at meeting the demand for teachers, can actually train quality teachers (Yuksel, 2004). Moreover it is important to determine whether there is a change in the attitudes towards the teaching profession of teacher candidates who enroll in a short-term pedagogical teacher program. This is important because if teacher candidates do not develop positive attitudes towards teaching, and if the education they receive does not serve its purpose, it is not possible for these teacher candidates to fully understand or appreciate the profession. Attitude is the psychological pattern formed with the interaction of emotions, thoughts and behaviors that define behavioral tendencies towards an item or object. When an individual has a positive attitude towards an item or object, he or she will be inclined to behave positively toward that object, to approach it, to be close to it, to support and help it

(Adiguzel & Karadas, 2013; Koklu, 1997; Tezbasar, 1997). By determining the attitudes of teacher candidates towards the teaching profession and the training they need to receive in order to successfully work this profession, it can be seen whether teacher candidates have a positive view of the profession. There are attitude scales towards teaching profession in the literature.

There also have been several studies in Turkey exploring the attitudes of teacher candidates who received Pedagogical teacher training for the teaching profession (Eraslan & Cakici, 2011) and there have also been studies exploring students' metaphorical perception on about pedagogical teacher training (Dundar & Karaca, 2013). However there are no measurement tools to determine the attitudes of teacher candidates receiving pedagogical teacher training towards that training and there is no scale on pedagogical teacher training. The existence of measurement tools for the pedagogical teacher training would significantly contribute to the studies in the field. Since pedagogical teacher training is becoming increasingly more common in Turkey (Aydin, 2014; Kaya, 2015), it is important to develop measurement tools. In this vein, the purpose of this study is to develop a scale that determines the attitudes of students who receive pedagogical teacher training towards that training. In this regard, the following questions are addressed.

1) What are the exploratory factor analysis results of the Attitude Scale towards Pedagogical teacher Training PFETO?

2) What are the confirmatory factor analysis results of the PFETO?

3) What are reliability estimates of the PFETO)?

2. Method

2.1 Research Design

This study is a descriptive study that aims to develop a scale for determining the attitudes of student-teachers toward their pedagogical teacher training. Researchers also investigate how to develop it and describe the psychometric properties of this scale.

2.2 Scale Development Group

It is necessary to determine some technical properties of the scales (such as construct validity and reliability) in scale development studies. In developing the PFETO, construct validity (factor analysis), construct confirmation (confirmatory factor analysis) and internal consistency Chronbach Alpha reliability coefficient are determined. PFETO is targeted at teacher candidates who currently enrolled in Pedagogical teacher training programs. In order to determine the technical properties of the scale, data was collected from two different groups.

- ***Group 1:*** This group was used to discover PFETO's factor structure and reliability coefficient. It consisted of 231 teacher candidates who received Pedagogical teacher training at a university in Istanbul in the 2013-2014 academic year. The scale was developed in April.

- ***Group 2:*** This is the group from which data was collected to see whether the factor structure demonstrated by PFETO could be confirmed. This group consisted of 219 teacher candidates who received Pedagogical teacher training at a university in Istanbul in the 2013-2014 academic year. The scale was administered towards the end of May.

2.3 Scale Development Process

There are suggestions on scale development in various resources (Ballesteros, 2003, as cited in Berberoglu, 2007; Crocker & Algina, 1986). Scale development steps are as follows:

1) Determining the target audience and objective of the scale;

2) Determining the scope of the attributes targeted by the scale;

3) Writing items for these attributes;

4) Reviewing items and turning them into a form;

5) Determining how to score the items and how to analyze the data;

6) Doing a pilot study;

7) Scoring and analyzing the items;

8) Forming the real scale based on the results obtained.

This study follows Ballesteros (2003, as cited in Berberoglu, 2007; Ozdemir & Cikrikci-Demirtasli, 2015) and Crocker and Algina's (1986) scale development process and aims to develop scales to determine the efficacy of

Pedagogical teacher training for purposes of teacher training and scales to determine the attitudes towards pedagogical teacher training.

3. Data Collection

The Attitude Scale towards Pedagogical teacher Training (PFETO), designed to be further developed and to be measured on its technical specifications (validity and reliability), consists of 18 five-point Likert scale questions (strongly disagree, disagree, partially agree, agree, strongly disagree). The literature on Pedagogical teacher training, attitudes, design and development of attitude scales was reviewed prior to the development of the current scale. Based on the information gathered from the review, a scale with 18 questions was designed. Before the pilot testing of the scale, an associate professor of curriculum design and development, a Ph.D. candidate (thesis in progress) of curriculum design and development, and a Ph.D. candidate of assessment and evaluation were asked to provide their expert opinions on the scale. The scale was finalized based on the feedback provided by these experts in the field, and the pilot test was then carried out.

The scale was pilot tested in accordance with the feedback collected from the experts. Four items (items numbered 1, 8, 12 and 18) were determined to load on more than one factor based on the results obtained from the pilot testing. These items, which loaded on more than one factor, were removed from the scale and 14 items were left. These 14 items were renumbered. 1, 4, 10, 13, and 14. Items on the scale are reverse coded because these items are either structurally or semantically negative.

The items in the scale are categorized based on two factors. The items under each factor are as follows:

- ***The Value of pedagogical teacher Training with Regard to the Teaching Profession:*** The value and necessity of pedagogical teacher is a sub-dimension in terms of the advantages it provides to the teaching profession. Items 2, 3, 5, 6, 7, 8, 9, 11, 12, and 14 are in this sub-dimension. The highest possible score is 50. A high score is an indicator of the worth attached to pedagogical teacher training.

- ***The Redundancy of pedagogical teacher Training:*** This is a factor which shows that pedagogical teacher. Items 1, 4, 10 and 13 are in this sub-dimension. The highest possible score is 20. A high score indicates that formation training is not valued.

4. Data Analysis

The data gathered from the pilot test were transferred to IBM-SPSS 22 and Lisrel Package Program. Such techniques as Kaiser-Meyer-Olkin (KMO) test, Bartlett Sphericity test, Varimax rotation, Cronbach alpha reliability coefficient, and confirmatory factor analysis were used to measure the validity and reliability of ASPFT (Buyukozturk, 2003; Ozdamar, 2013; Ozdemir & Cikrikci-Demirtasli, 2015). The details of the analysis can be found in the "Findings" section.

5. Results

5.1 The Findings of Exploratory Factor Analysis

Principal components analysis was carried out to determine the construct validity of PFETO. This analysis also includes Kaiser Meyer Olkin (KMO) and Bartlett Test, which were conducted to assure that the assumptions of principal components analysis were met by the data set. The results obtained from these test are as follows (Buyukozturk, 2003; Ozdamar, 2013):

- The KMO value was found to be 0.928. This value should be at least over 0.50. The obtained KMO value shows that the data set is appropriate for analysis.

- The Bartlet Test result was [χ^2 = 1593.056; sd = 91, $p < 0.01$]. This value is significant, therefore it shows that factor analysis can be carried out on the data set.

Items 1, 8, 12 and 18 were found to have a strong correlation on more than one factor based on the exploratory factor analysis results obtained. These four items, which were loaded on more than one factor, were removed from the scale. The remaining 14 items were clustered under two factors. The factor loadings, item total correlations, the variance of attitudes explained by the two scale factors and reliability coefficients are provided in Table 1.

Table 1. Primary factor load values from factor analysis and total item correlation values

Item No	Primary Factor Load Value	Total-Item Correlation	Item No	Primary Factor Load Value	Total-Item Correlation
V2	0.651	0.469	V10	0.663	0.711
V3	0.338	0.430	V11	0.582	0.661
V4	0.446	0.594	V13	0.547	0.479
V5	0.615	0.705	V14	0.578	0.647
V6	0.640	0.732	V15	0.648	0.751
V7	0.759	0.827	V16	0.480	0.584
V9	0.616	0.555	V17	0.448	0.601
Variance accounted for Two Factors = % 56.511					
Cronbach Alpha = 0.911					

From Table 1, it can be seen that primary factor loadings of the items vary in a range from 0.338 to 0.759. Item-total correlations, on the other hand, are between 0.430 and 0.827. With the remaining items, the scale explains 56.511% of the variance in attitudes towards pedagogical teacher training falls under two sets of factors. When taken undimensionally, the obtained Cronbach Alpha internal consistency reliability value was 0.911. In Cronbach Alpha reliability analysis, "Cronbach's Alpha if Item deleted" section showed that if any of the items in Table 1 were deleted from the scale, Cronbach Alpa reliability coefficient would fall below 0.911. Based on these findings, the reliability coefficients for all items are found to be high (Buyukozturk, 2003; Ozdamar, 2013).

Principal components analysis shows whether or not there are subdimensions in the scale. In order to determine the subdimensions, "Varimax" rotation was carried out on the data gathered from 231 individuals (Buyukozturk, 2003; Ozdamar, 2013). The results obtained from "Varimax" rotation are provided in Table 2.

Table 2. Factors after Varimax rotation and items under factors

Items	Factors	
	1	2
V9	0.785	
V10	0.781	
V14	0.736	
V11	0.729	
V6	0.703	
V7	0.702	
V15	0.647	
V4	0.601	
V17	0.565	
V3	0.425	
V2		0.802
V13		0.723
V5		0.602
V16		0.585

Table 2 shows that items 3, 4, 6, 7, 9, 10, 11, 14, 15 and 17 form a dimension. When the items in this dimension are examined, it is concluded that this dimension could be named *The Value of Pedagogical Teacher Training for Teaching Profession (PFEOMBD)*. Items 2, 5, 13 and 16 form another dimension. It is concluded that this dimension can be called *The Redundancy of Pedagogical Teacher Training (PFEG)*.

5.2 Findings of Confirmatory Factor Analysis

After the explanatory factor analysis, confirmatory factor analysis was carried out to determine whether it is confirmed or not. The numbers left (2, 3, 4, 5, 6, 7, 9, 10, 11, 13, 14, 15, 16 and 17) were renumbered as (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 and 14) before the confirmatory factor analysis. The model obtained from the analysis can be seen in Figure 1.

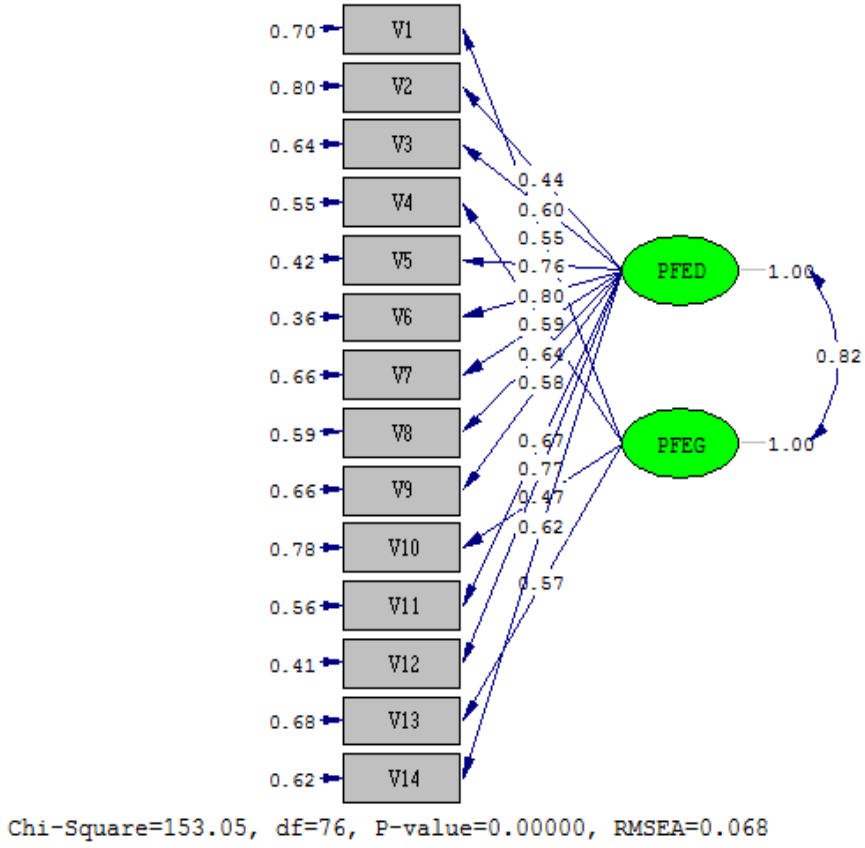

Figure 1. The model of confirmatory factor analysis based on the attitude scale towards pedagogical teacher training (standardized values)

When Figure 1 is examined, it can be seen that the values of Chi-square and degree of freedom obtained from Confirmatory Factor Analysis (CFA) are $\chi^2 = 153.05$, (sd = 76, $p < .01$), and the ratio of $\chi^{2/sd} = 2.01$ is obtained. That the ratio obtained from the selected samples is less than 3 is an indicator of perfect fit (Joreskog & Sorbom, 1993; Sumer, 2000; Kline, 2005). In this research it can be asserted that there is almost a perfect fit between the model obtained from CFA and the data.

It can be said that one of the most commonly used lack-of-fit indexes in CFA is RMSEA (root mean square error of approximation). In an CFA analysis, the value 0.05 or less in RMSEA index is an indicator of model-data fit; however, it is also stated that this value can be acceptable to the value 0.08 (Browne & Cudeck, 1993; Hu & Bentler, 1999; Simsek, 2007; Vieira, 2011). In this research, RMSEA value is 0.068, which can be considered acceptable.

In CFA, obtaining an AGFI (Adjusted Goodness of fit index) value more than 0.80, a RMR (Root-mean-square residual) value less than 0.10 (Anderson & Gerbing, 1984; Marsh, Balla, & McDonald, 1988), and an SRMR (Standardized RMR) value less than 0.08 (Simsek, 2007) can be considered acceptable for confirming the model-data fit. The result of CFA determines AGFI as 0.87, RMR as 0.064 and SRMR as 0.054. Based on these results it can be asserted that model-data fit is acceptable.

Obtaining NNFI (Non-Normed Fit Index), CFI (Comparative Fit Index), NFI (Normed Fit Index) and IFI (Incremental Fit Index) values as 0.95 more is an indicator of a perfect fit between the model and the data (Bentler, 1990; Hu & Bentler, 1999; Sumer, 2000; Simsek, 2007; Cokluk, Guclu, & Buyukozturk, 2008). The results of the analysis determine NNFI as 0.96, CFI as 0.96, NFI as 0.97 and IFI as 0.97, which may be considered a perfect fit.

Table 3. The goodness of fit values obtained from CFA

χ^2	sd	$\chi^{2/sd}$	RMSEA	AGFI	SRMR	RMR	NNFI	CFI	NFI	IFI
153.05	76	2.01	0,068	0.87	0.054	0.064	0.96	0.96	0.97	0.97

The main goal of CFA is to determine the goodness of fit between a model and previously obtained data (Sumbuloglu & Akdag, 2009). Within this context, "The Attitude towards Pedagogical Teacher Training" is confirmed according to the statistics gathered from CFA of the scale's 2 dimensional structure.

5.3 Findings from Reliability (Cronbach Alpha) Analysis

After exploratory factor analysis and confirmatory factor analysis, 14 items remained in the scale. These 14 items are clustered in two sub-dimensions. The reliability values for these sub-dimensions are shown in Table 4 (Buyukozturk, 2003; Ozdamar, 2013).

Table 4. Cronbach alpha reliability test results for subdimension

Items	Cronbach Alpha	Items	Cronbach Alpha
2, 3, 5, 6, 7, 8, 9, 11, 12 and 14	0.902	1, 4, 10 and 13	0.743

It can be seen from Table 4 that the reliability coefficient for the first sub-dimension (The Value of Pedagogical Teacher Training for Teaching Profession [PFEOMBD]) is 0.902 and the reliability coefficient for the second sub-dimension (The Redundancy of Pedagogical Teacher Training [PFEG]) is 0.743. Reliability coefficient values between 0.70 and 0.90 are considered to be highly reliable values (Ozdamar, 2013, p. 555). This subscale has a high degree of reliability.

6. Discussion and Conclusion

After the exploratory and confirmatory factor analyses were carried out on the (PFETO), the scale was finalized. As a result;

- Items 3, 4, 6, 7, 9. 10, 11, 14, 15 and 17 were renumbered as ***items 2, 3, 5, 6, 7, 8, 9, 11, 12 and 14***. The sub-dimension formed by these items is called the "***The Value of Pedagogical Teacher Training for Teaching Profession (PFEOMBD)***" sub-dimension.
- Items 2, 5, 13, and 16 were renumbered as ***items 1, 4, 10 and 13***. The sub-dimension formed by these items is called the "***The Redundancy of Pedagogical Teacher Training (PFEG)***" sub-dimension.

1) Scale development studies are usually carried out on small groups. This study was carried out on two groups, one group consisting of 231 students used for exploratory factor analysis and one group consisting of 219 students used for confirmatory factor analysis. It is thought that supplementing the findings of this study with additional studies implementing this scale will help determine the technical attributes of the scale. Therefore, it is recommended that PFETO be used by different researchers on different groups to find additional evidence for its validity and reliability.

2) Researcher suggests PFETO to be used on teacher candidates receiving the ever increasing Pedagogical teacher trainings in Turkey.

3) Using PFETO with other data collection tools on Pedagogical teacher training and analyzing the data in combination with them will both increase the impact of this study and contribute to the development process of PFETO.

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